Math 123-02
Summer 2024
Dr. Lily Yen

Assignment 6

Show all your work

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Number: _____
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Problem 1: Below is a list of the ages of 14 volunteers in Capilano University's Invasive Species pull party this spring.

65, 74, 46, 28, 82, 70, 30, 24, 48, 15, 69, 35, 76 and 60.

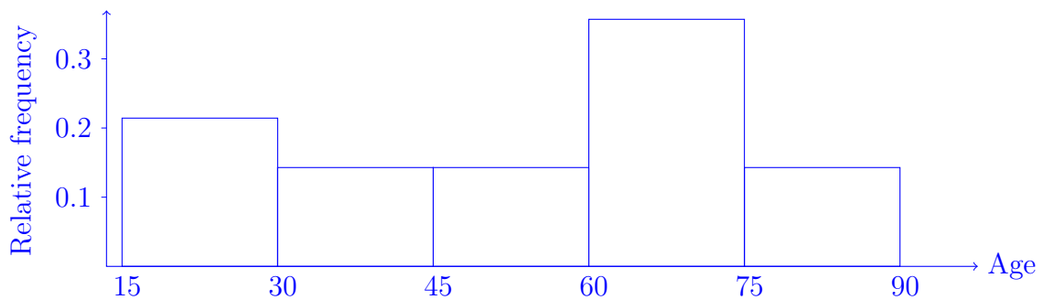
a. Make a stem-and-leaf plot of the data.

1	5
2	4 8
3	0 5
4	6 8
5	
6	0 5 9
7	0 4 6
8	2

b. Construct a relative frequency table using five classes.

Age	Frequency	Relative frequency
15–29	3	0.214
30–44	2	0.143
45–59	2	0.143
60–74	5	0.357
75–89	2	0.143
Total	17	

c. Draw a histogram from your relative frequency table. Clearly label the axes.



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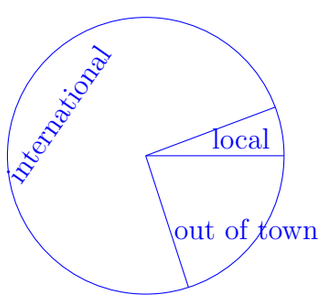
Problem 2: In Lily's Math 123 Spring class of 35 students, suppose 2 are locals, 26 are international, and 7 are from out of town. Draw a pie chart for the above data. Include your steps for the calculation of each sector angle in the pie chart.

	Freq.	Rel. freq.	Angle
local	2	0.057	21
international	26	0.743	267
out of town	7	0.200	72
Total	31	1.000	360



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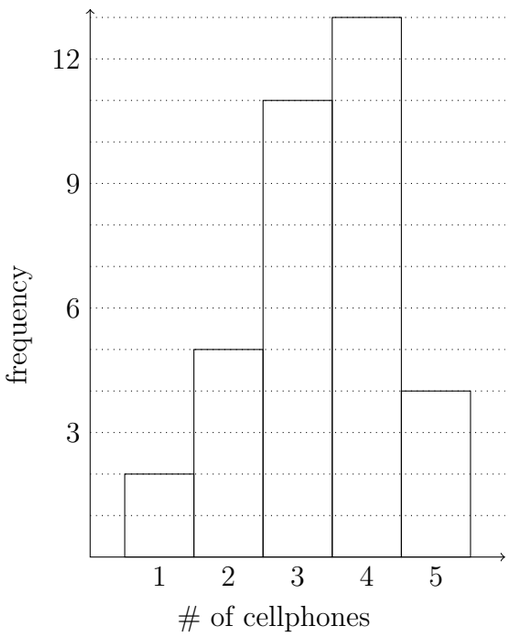
Problem 3: The histogram shown is a summary of a survey of the number of cellphones (on the horizontal axis) ever owned by a sample of students in the budget travel club at Capilano University. Answer the following questions.



a. Find the number (n) of students surveyed.

b. Find the average number of cellphones ever owned in the sample.

c. Find the mode for the number of cellphones ever owned in the sample.

d. Find the median for the number of cellphones ever owned in the sample.

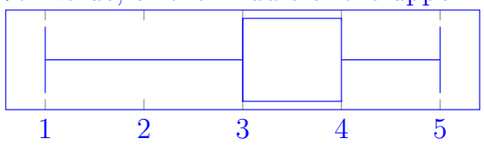
e. Compute the first quartile and the third quartile from the sample data.

f. Draw a boxplot for the data set.

g. Find the standard deviation of the data.

The number of students surveyed is $n = 2 + 5 + 11 + 13 + 4 = 35$.
The average number of cellphones ever owned is
$(2 \times 1 + 5 \times 2 + 11 \times 3 + 13 \times 4 + 4 \times 5)/35 = 117/35 \approx 3.3$
The mode is 4.0 cellphones.
The median for 35 values is thee 18th, so 3.0 cellphones.
The first quartile is the 9th value, or the middle of the first 17 values, so 3.0, the same as the median.
The third quartile is the 27th value, or the middle of the upper 17 values, or 4.0 cellphones.

Min	1.0
1st Quartile	3.0
Median	3.0
3rd Quartile	4.0
Max	5.0
Mean	3.3
Mode	4.0



The variance is

$$\frac{2 \times (1 - \frac{117}{35})^2 + 5 \times (2 - \frac{117}{35})^2 + 11 \times (3 - \frac{117}{35})^2 + 13 \times (4 - \frac{117}{35})^2 + 4 \times (5 - \frac{117}{35})^2}{35} \approx 1.082,$$

so the standard deviation is $\sqrt{1.082} \approx 1.040$.

Score: /11

/11